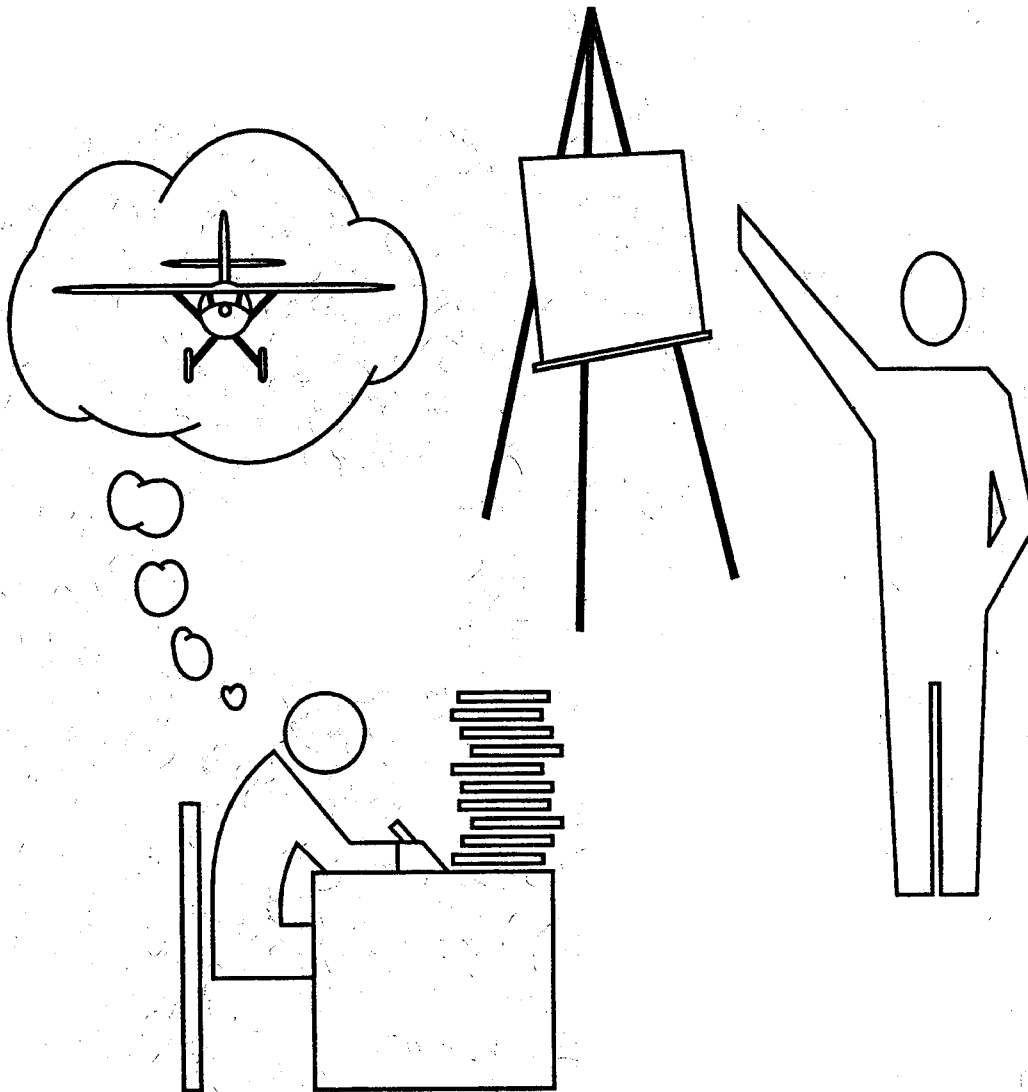


FLIGHT AND GROUND INSTRUCTOR KNOWLEDGE TEST GUIDE



U.S. Department of Transportation
Federal Aviation Administration

FLIGHT AND GROUND INSTRUCTOR KNOWLEDGE TEST GUIDE

1994

**U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION**
Flight Standards Service

PREFACE

The Flight Standards Service of the Federal Aviation Administration (FAA) has developed this guide to help applicants meet the knowledge requirements for flight and ground instructor certification.

This guide contains information about eligibility requirements, test descriptions, testing and retesting procedures, and sample test questions representative of those used in the official tests. Sample test questions and choices of answers are based on regulations, principles, and practices valid at the time this guide was printed. In addition, appendix 1 provides a list of reference materials and subject matter knowledge codes, and computer testing designees. The list of subject matter knowledge codes should be referred to when reviewing areas of deficiency on the airman test report. Changes to the subject matter knowledge code list will be published as a separate advisory circular.

The flight and ground instructor test question bank and subject matter knowledge code list for all airmen certificates and ratings, with changes, may be obtained by computer modem from FEDWORLD at (703) 321-8020. This bulletin board service is provided by the U.S. Department of Commerce, 24 hours a day, 7 days per week. For technical assistance regarding computer software and modem requirements for this service, contact the FEDWORLD help desk at (703) 487-4608 from 7:30 a.m. to 5:00 p.m. e.s.t., Monday through Friday.

This publication may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402-9325 or from U.S. Government Printing Office bookstores located in major cities throughout the United States.

Comments regarding this guide should be sent to:

Federal Aviation Administration
Operations Support Branch, AFS-630
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P.O. Box 25082
Oklahoma City, OK 73125-0082

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FLIGHT AND GROUND INSTRUCTOR KNOWLEDGE TEST GUIDE

INTRODUCTION

The FAA has available hundreds of computer testing centers nationwide. These testing centers offer the full range of airman knowledge tests including military competence, instrument foreign pilot, and pilot examiner screening tests. Refer to appendix 1 in this guide for a list of computer testing designees.

This knowledge test guide was developed to be used by applicants preparing to take a knowledge test for the following ratings:

- Fundamentals of Instructing
- Ground Instructor — Basic
- Ground Instructor — Advanced
- Flight Instructor — Airplane
- Flight Instructor — Helicopter
- Flight Instructor — Gyroplane
- Flight Instructor — Glider
- Flight Instructor — Airplane (Added Rating)
- Flight Instructor — Helicopter (Added Rating)
- Flight Instructor — Gyroplane (Added Rating)
- Flight Instructor — Glider (Added Rating)

What is required to become a skilled and effective flight or ground instructor? Although some individuals possess more knowledge and skills than others, no one is born a natural instructor. Competent instructors become so through study, hard work, and experience.

This guide is not offered as a quick and easy way to obtain the necessary information for passing these knowledge tests. There is no quick and easy way to obtain this knowledge in addition to the skills needed to transform a student into a pilot capable of operating safely in our complex national airspace system. Rather, the intent of this guide is to define and narrow the field of study, as much as possible, to the required knowledge areas for obtaining a flight or ground instructor certificate.

ROLE OF THE INSTRUCTOR

All pilot training is directed toward developing safe and competent pilots. The more complete a student's understanding of theory and principles, the easier it will be for that student to become a safe, competent pilot. It has long been recognized that ground and flight instruction go hand in hand. Each complements the other, resulting in a training program that is both meaningful and comprehensive.

Generally, pilots learn by one of two methods. Some learn by rote while others acquire knowledge and understanding of basic procedures and techniques and apply these concepts to various piloting operations. The latter method of learning is, by far, more effective. Effective pilot training is based on the fact that knowledge and understanding of principles, along with skill, are essential to safety in flight.

The keystone of the present-day training concept is the flight instructor — a professional who should assume full responsibility for all phases of a student pilot's ground and flight instruction. A flight instructor must first, of course, be fully qualified as a pilot. However, a successful instructor must meet qualifications far beyond those required for certification as a pilot. An instructor must have a thorough understanding of how learning occurs and how to employ teaching methods that best foster learning. Probably more than any other single factor, the instructor's own attitude toward instruction determines how well the job of teaching is done. If instructors understand the teaching process, the learning process, and teach in a professional manner, they will produce pilots who are able to operate safely within the National Airspace System.

ELIGIBILITY REQUIREMENTS

For specific information pertaining to certification, applicants should carefully review the appropriate sections of Federal Aviation Regulations (FAR) Part 61 for flight instructor and FAR Part 143 for ground instructor. However, FAR Part 143, dealing with ground instructors, does not explain the privileges of basic and advanced ratings on a ground instructor certificate. The holder of a ground instructor certificate with a basic rating may instruct only at the private pilot level, in all ground subjects, except radio navigation, and may certify the instruction given. The holder of a ground instructor certificate with an advanced rating may instruct at the private, commercial, and flight instructor level, in all ground subjects, except instrument procedures and operations, and may certify the instruction given.

A proposed revision has been made to delete FAR Part 143 and incorporate ground instructor certification into FAR Part 61. In addition, basic and advanced ratings would be deleted and knowledge tests would become category specific, i.e., airplane, rotorcraft, glider, lighter-than-air. Applicants should check the current FAR Part 61 to see if these changes have occurred.

When applying for a knowledge test, you must show evidence of completing the appropriate ground training or home study course. In addition, you must show that you meet or will meet the age requirement of this Part for the certificate sought before the expiration date of the airman test report. You are required to pass a fundamentals of instructing knowledge test and a flight or ground instructor knowledge test specific to the instructor rating sought. These tests can be taken on the same day and do not have to be taken in any particular order.

When applying for any additional instructor rating, you are not required to take the fundamentals of instructing test again. Also, once you have acquired a flight instructor certificate, you are eligible to give any type of ground instruction required for a pilot or instructor certificate or rating, based on the ratings on your flight instructor certificate. Because of this, it is not necessary to obtain a separate ground instructor certificate since you would already have these privileges.

KNOWLEDGE AREAS ON THE TESTS

Instructor tests are comprehensive because they must test an applicant's knowledge in many subject areas. These include all aeronautical knowledge areas required for a private and commercial pilot certificate as well as those required for a flight or ground instructor certificate. When applying for any flight or ground instructor knowledge test, you should review the appropriate sections of FAR Part 61 for specific knowledge areas on each test. Flight instructors should be knowledgeable of not only **what** to do and **how** to do it but also **why** a maneuver is performed and what common errors result if the maneuver or procedure is not performed properly. Ground instructors should also be knowledgeable of all subjects. However, they would not be expected to understand evaluating pilot performance of maneuvers and analyzing common errors. It is generally accepted that a pilot with much knowledge but little skill is not adequately equipped for day-to-day flying, but neither is the pilot who is skillful in the manipulative techniques of flying but lacks aviation knowledge.

DESCRIPTIONS OF THE TESTS

All applicants seeking initial flight or ground instructor certification must successfully complete a fundamentals of instructing knowledge test. However, a person holding a current teacher's certificate at the junior or senior high school level or who is an instructor at a college or university can receive credit for this test. This test contains 50 questions and 1.5 hours is allowed for taking this test. The minimum passing score is 70 percent.

In addition, applicants must successfully complete a knowledge test appropriate to the desired rating. The following tests each contain 100 questions and 2.5 hours is allowed to take each test.

- Ground Instructor — Basic
- Ground Instructor — Advanced
- Flight Instructor — Airplane
- Flight Instructor — Helicopter
- Flight Instructor — Gyroplane
- Flight Instructor — Glider

Applicants desiring to add a rating to their flight instructor certificate must successfully complete a knowledge test appropriate to the desired rating.

The following tests each contain 25 questions and 1.0 hour is allowed to take the test.

Flight Instructor — Airplane (Added Rating)
Flight Instructor — Helicopter (Added Rating)
Flight Instructor — Gyroplane (Added Rating)
Flight Instructor — Glider (Added Rating)

Flight instructor test results expire at the end of 24 months after the month in which the test was taken. Fundamentals of instructing and ground instructor tests currently have no expiration date.

All test questions are the objective, multiple-choice type, with three choices of answers. Each question can be answered by the selection of a single response. Each test question is independent of other questions, that is, a correct response to one does not depend upon, or influence the correct response to another.

Communication between individuals through the use of words is a complicated process. In addition to being an exercise in the application and use of aeronautical knowledge, a test is also an exercise in communication since it involves the use of the written language. Since the tests involve written rather than spoken words, communication between the test writer and the person being tested may become a difficult matter if care is not exercised by both parties. Consequently, considerable effort is expended to write each question in a clear, precise manner. Make sure you carefully read the instructions given with each test, as well as the statements in each test item.

When taking a test, keep the following points in mind:

1. Answer each question in accordance with the latest regulations and procedures.
2. Read each question carefully before looking at the possible answers. You should clearly understand the problem before attempting to solve it.

3. After formulating an answer, determine which choice most nearly corresponds with that answer. The answer chosen should completely resolve the problem.

4. From the answers given, it may appear that there is more than one possible answer. However, there is only one answer that is correct and complete. The other answers are either incomplete, erroneous, or represent a common misconception.

5. If a certain question is difficult for you, it is best to mark it for RECALL and proceed to the next question. After you answer the less difficult questions, return to those which you marked for recall and answer them. The recall marking procedure will be explained to you prior to starting the test. Although the computer should alert you to unanswered questions, make sure every question has an answer recorded. This procedure will enable you to use the available time to the maximum advantage.

6. When solving a calculation problem, select the answer nearest your solution. The problem has been checked with various types of calculators; therefore, if you have solved it correctly, your answer will be closer to the correct answer than any of the other choices.

TAKING A KNOWLEDGE TEST BY COMPUTER

You should determine what authorization requirements are necessary before contacting or going to the computer testing center. Testing center personnel cannot begin the test until you provide them with the proper authorization, if one is required. A limited number of tests require no authorization. However, you should always check with your instructor or local Flight Standards District Office if you are not sure what kind of authorization to bring to the testing facility.

The next step is the actual registration process. Most computer testing centers require that all applicants contact a central 1-800 phone number. At this time, you should select a testing site of your choice, schedule a test date, and make financial arrangements for test payment.

You may register for tests several weeks in advance of the proposed testing date. You may cancel your appointment up to 2 business days before test time, without financial penalty. After that time, you may be subject to a cancellation fee as determined by the testing center.

You are now ready to take the test. Remember, you always have an opportunity to take a sample test before the actual test begins. Your actual test is under a time limit, but if you know the material, there should be sufficient time to complete and review your test. Within moments of completing the test, you will receive an airman test report, which contains your score. It also lists those subject matter knowledge areas where questions were answered incorrectly. **The total number of subject matter knowledge codes shown on the test report is not necessarily an indication of the total number of questions answered incorrectly.** These codes refer to a list of knowledge areas that can be found in appendix 1 of this guide. You can study these knowledge areas to improve your understanding of the subject matter. Your instructor is required to review each of the knowledge areas listed on your airman test report with you, and complete an endorsement that remedial study was conducted in these deficient areas. The examiner may also quiz you on these areas of deficiency during the practical test.

The airman test report, which must show the computer testing company's embossed seal, is an important document. **DO NOT LOSE THE AIRMAN TEST REPORT** as you will need to present it to the examiner prior to taking the practical test. Loss of this report means that you will have to request a duplicate copy from the FAA in Oklahoma City. This will be costly and time consuming.

CHEATING OR OTHER UNAUTHORIZED CONDUCT

Computer testing centers follow rigid testing procedures established by the FAA. This includes test security. When entering the test area, you are permitted to take only scratch paper furnished by the test administrator and an authorized aviation computer, plotter, etc., approved for use in accordance with FAA Order 8080.6, Conduct of Airmen Knowledge Testing via the Computer Medium, and AC 60-11, Aids Authorized for Use by Airman Written Test Applicants. The FAA has directed testing centers to stop a test any time a test administrator suspects a cheating incident has occurred. An FAA investigation will then follow. If the investigation determines that cheating or other unauthorized conduct has occurred, any airman certificate that you hold may be revoked, and you may not be allowed to take a test for 1 year.

RETESTING PROCEDURES

If the score on the airman test report is 70 or above, in most cases the report is valid for 24 calendar months. You may elect to retake the test, in anticipation of a better score, after 30 days from the date your last test was taken. Prior to retesting, you must give your current airman test report to the computer testing administrator. Remember, the score of the **latest** test you take will become the official test score. The FAA will not consider allowing anyone to retake a valid test before the 30-day remedial study period.

A person who fails a knowledge test may apply for retesting before 30 days of the last test providing that person presents the failed test report and an endorsement from an authorized instructor certifying that additional instruction has been given, and the instructor finds the person competent to pass the test. A person may retake a failed test after 30 days without an endorsement from an authorized instructor.

SAMPLE TEST QUESTIONS AND ANSWERS

FUNDAMENTALS OF INSTRUCTING

1. Can learning take place without perception?

- A—No; perceptions are the basis of all learning.
- B—Yes, but only when motivation is strong enough to overcome the lack of perceptual cues.
- C—Yes; learning takes place when a person gives meaning to insights while perceptions involve the grouping of insights into meaningful wholes.

Answer A—Subject Matter Code: H20 (AC 60-14, P4). All learning comes from perceptions that are directed to the brain by one or more of the five senses.

2. The highest level of learning has been achieved when a student is able to

- A—apply a skill that has been learned.
- B—correlate what has been learned with things previously learned.
- C—understand what has been taught and to apply this knowledge consistently.

Answer B—Subject Matter Code: H20 (AC 60-14, P9). The highest level of learning is that level at which the student becomes able to associate an element that has been learned with other segments or blocks of learning.

3. Test reliability refers to the

- A—accuracy with which a test measures student progress.
- B—exactness with which a test measures what it is supposed to measure.
- C—characteristic of a test that indicates consistent results over a period of time.

Answer C—Subject Matter Code: H26 (AC60-14, P45). A test, to be reliable, should measure results on a consistent basis.

4. What should a flight instructor do with a student who shows a lack of confidence while practicing landings?

- A—Assign goals that are less difficult.
- B—Use praise to a greater extent during each landing.
- C—Continue instruction but in a more energetic manner so that the student will work harder.

Answer A—Subject Matter Code: H30 (AC 60-14, P62). A student whose slow progress is due to a lack of confidence should be assigned sub-goals that can be attained more easily.

5. Flight instructors can minimize student anxiety by

- A—keeping the student busy during each flight.
- B—terminating the flight immediately upon detecting student fear.
- C—emphasizing the positive rather than negative experiences of flying.

Answer C—Subject Matter Code: H30 (AC 60-14, P65). Student anxieties can be minimized throughout training by emphasizing the benefits and pleasurable experiences which can be derived from flying, rather than continuously citing the unhappy consequences of faulty performance.

SAMPLE TEST QUESTIONS AND ANSWERS

FLIGHT AND GROUND INSTRUCTOR

1. Areas of forecast icing conditions aloft can be determined by referring to

- A—area forecasts.
- B—weather depiction charts.
- C—aviation sequence reports.

Answer A— Subject Matter Code: I43 (AC 00-45, Sec 4). A forecast of non-thunderstorm related icing of light or greater intensity for up to 12 hours can be found in an area forecast.

2. An altimeter indicates 3,450 feet MSL when set to 29.76. What is the approximate pressure altitude?

- A—3,290 feet.
- B—3,466 feet.
- C—3,610 feet.

Answer C—Subject Matter Code: I22 (AC 00-6, P18). Pressure altitude is the altitude read from an altimeter when 29.92 Hg is set in the window. Since 1 Hg equals approximately 1,000 feet, the difference here is 160 feet. In this example, 29.76 Hg is lower than 29.92 Hg; therefore, the pressure altitude will be 160 feet higher or 3,610 feet.

3. What is the duration of a flight instructor certificate?

- A—Indefinite unless suspended or revoked.
- B—24 months after the month in which it was issued or renewed.
- C—Indefinite, as long as the holder has a current pilot certificate and medical certificate appropriate to the privileges being exercised.

Answer B— Subject Matter Code: A20 (FAR 61.19). A flight instructor certificate expires at the end of 24 months after the month in which it was issued (e.g., a certificate issued on 12-13-93 expires on 12-31-95).

4. Normally, the vertical limits of Class D airspace extend up to and including how many feet above the surface of an airport?

- A—2,500 feet.
- B—3,000 feet.
- C—4,000 feet.

Answer A—Subject Matter Code: J08 (AIM, 3-14). Generally, the vertical limits of Class D airspace extend to 2,500 feet above the airport elevation surrounding those airports that have an operational control tower.

5. Rotor blade pitch angle is the acute angle between the blade chord line and the

- A—angle of attack.
- B—rotor plane of rotation.
- C—direction of the relative wind.

Answer B—Subject Matter Code: H70 (AC 61-13,P2). The rotor blade pitch angle is the acute angle between the blade chord line and the reference plane determined by the main rotor hub. Since the rotor plane of rotation is parallel to the plane containing the main rotor hub, the rotor blade pitch angle could also be described as the acute angle between the blade chord line and the rotor plane of rotation.

6. Which is a result of ground effect?

- A—An increase in lift with no increase in angle of attack.
- B—An increase in induced drag with no change in angle of attack.
- C—An increase in the wing's downwash with no increase in angle of attack.

Answer A—Subject Matter Code: H66 (AC 61-21,P272). When in ground effect, the wing requires a lower angle of attack to produce the same lift or, if a constant angle of attack is maintained, an increase in lift coefficient will result.

7. What causes the northerly turning error in a magnetic compass?

- A—The magnetic dip characteristic.
- B—Coriolis force at the mid-latitudes.
- C—Over sensitivity when closer to one of the magnetic poles.

Answer A—Subject Matter Code: H03 (AC 61-23,P72). The vertical component of magnetic lines of force causes a compass to deflect or dip. The closer to the magnetic poles, the larger the deflection or dip.

8. Helicopter low frequency vibrations are always associated with the

- A—engine.
- B—main rotor.
- C—transmission.

Answer B—Subject Matter Code: H78 (AC 61-13,P66). Low frequency vibrations are always associated with the main rotor. The vibration will be some frequency related to the rotor RPM and slow enough that they can be counted.

9. (Refer to figure 1.) Determine the approximate crosswind component:

Landing Rwy 33
Wind 020° at 21 kts

- A—16 knots.
- B—19 knots.
- C—25 knots.

Answer A—Subject Matter Code: H04 (AC 61-23,P96). Determine the number of degrees between the runway heading and the wind direction. Follow the corresponding degree line into the arc determined by the wind speed and then drop down to find the crosswind component.

10. (Refer to figure 2.) How should the 250-pound weight be shifted to balance the plank on the fulcrum?

- A—.5 inches to the left.
- B—5.0 inches to the left.
- C—7.0 inches to the right.

Answer B—Subject Matter Code: H03 (AC61-23,P78). By multiplying the weight times the arm of the weight and board on the right side of the fulcrum, you arrive at a moment of 5,000. Weight times arm of the weight on the left side equals 3,750. The 250-pound weight on the left side of the fulcrum must then be moved 5 inches to the left in order to increase the moment by 1,250.

11. After 165 miles are flown from the departure point, the aircraft's position is located 10 miles off course. If 80 miles remain to be flown, what approximate total correction should be made to converge on course?

- A—9°.
- B—11°.
- C—14°.

Answer B—Subject Matter Code: H06 (AC 61-23,P162). Using a navigation computer, place the miles flown on the inner scale opposite the miles off course on the outer scale. Read the degrees to parallel on the outer scale opposite the speed arrow index (in this case, 3.5°). Then place the miles to be flown on the inner scale opposite the miles off course on the outer scale. Read the degrees to converge from parallel on the outer scale opposite the speed arrow index (in this case, 7.5°). By adding these two figures, the total correction to converge would be 11°.

12. GIVEN:

Usable fuel at takeoff 36 gal
Fuel consumption rate 12.4 gal/hr
Constant groundspeed. 140 kts
Flight time since takeoff 48 min

According to FAR Part 91, how much farther can a rotorcraft be flown under day VFR?

- A—294 NM.
- B—247 NM.
- C—224 NM.

Answer B—Subject Matter Code: H06 (AC 61-23,P162). Using a calculator, first determine the amount of flight time available with the fuel on board. Then, deduct the amount of time flown and the correct amount of time needed for reserve. Finally, determine the number of miles that can be flown at the given groundspeed.

13. When performing a lazy eight, when should the altitude be the same as the entry altitude?

- A—90° point.
- B—135° point.
- C—180° point.

Answer C—Subject Matter Code: H60 (AC 61-21,P164). At the completion of each 180° turn during a lazy eight, the airplane should return to the starting altitude.

14. (Refer to figure 3.) At which points will the wing (lateral axis) be in alignment with the pylon during turns around a point?

- A—1 and 3.
- B—2 and 4.
- C—1, 2, 3, and 4.

Answer A—Subject Matter Code: H60 (AC 61-21,P137). A constant radius around a point requires a constantly changing angle of bank and angle of crab. When heading directly upwind or downwind, the wing or lateral axis of the aircraft should be pointing to or aligned with the pylon.

APPENDIX 1

LIST OF REFERENCE MATERIALS AND SUBJECT MATTER KNOWLEDGE CODES

The publications listed in the following pages contain study material you need to be familiar with when preparing for flight and ground instructor knowledge tests. All of these publications can be purchased through U.S. Government bookstores, commercial aviation supply houses, or industry organizations. The latest revision of the listed references should be requested. Additional study material is also available through these sources that may be helpful in preparing for instructor knowledge tests. All publications listed would be excellent for an instructor to have in a personal reference library.

The subject matter knowledge codes establish the specific reference for the knowledge standard. When reviewing results of your knowledge test, you should compare the subject matter knowledge code(s) on your airman test report to the ones found below. This will be helpful for both review and preparation for the practical test.

FAR 1 Definitions and Abbreviations

- A01 General Definitions
- A02 Abbreviations and Symbols

FAR 61 Certification: Pilots and Flight Instructors

- A20 General
- A21 Aircraft Ratings and Special Certificates
- A22 Student Pilots
- A23 Private Pilots
- A24 Commercial Pilots
- A25 Airline Transport Pilots
- A26 Flight Instructors
- A29 Recreational Pilot

FAR 91 General Operating Rules

- B07 General
- B08 Flight Rules - General
- B09 Visual Flight Rules
- B10 Instrument Flight Rules
- B11 Equipment, Instrument, and Certificate Requirements
- B12 Special Flight Operations
- B13 Maintenance, Preventive Maintenance, and Alterations

NTSB 830 Rules Pertaining to the Notification and Reporting of Aircraft Accidents or Incidents and Overdue Aircraft, and Preservation of Aircraft Wreckage, Mail, Cargo, and Records

- G10 General

- G11 Initial Notification of Aircraft Accidents, Incidents, and Overdue Aircraft
- G12 Preservation of Aircraft Wreckage, Mail, Cargo, and Records
- G13 Reporting of Aircraft Accidents, Incidents, and Overdue Aircraft

AC 61-23 Pilot's Handbook of Aeronautical Knowledge

- H01 Principles of Flight
- H02 Airplanes and Engines
- H03 Flight Instruments
- H04 Airplane Performance
- H05 Weather
- H06 Basic Calculations Using Navigational Computers or Electronic Calculators
- H07 Navigation

AC 91-23 Pilot's Weight and Balance Handbook

- H10 Weight and Balance Control
- H11 Terms and Definitions
- H12 Empty Weight Center of Gravity
- H13 Index and Graphic Limits
- H14 Change of Weight
- H15 Control of Loading — General Aviation

AC 60-14 Aviation Instructor's Handbook

- H20 The Learning Process
- H21 Human Behavior
- H22 Effective Communication
- H23 The Teaching Process
- H24 Teaching Methods

- H25 The Instructor as a Critic
- H26 Evaluation
- H27 Instructional Aids
- H30 Flight Instructor Characteristics and Responsibilities
- H31 Techniques of Flight Instruction
- H32 Planning Instructional Activity

AC 61-21 Flight Training Handbook

- H50 Introduction to Flight Training
- H51 Introduction to Airplanes and Engines
- H52 Introduction to the Basics of Flight
- H53 The Effect and Use of Controls
- H54 Ground Operations
- H55 Basic Flight Maneuvers
- H56 Airport Traffic Patterns and Operations
- H57 Takeoffs and Departure Climbs
- H58 Landing Approaches and Landings
- H59 Faulty Approaches and Landings
- H60 Proficiency Flight Maneuvers
- H61 Cross-Country Flying
- H62 Emergency Flight by Reference to Instruments
- H63 Night Flying
- H65 Transition to Other Airplanes
- H66 Principles of Flight and Performance Characteristics

AC 61-13 Basic Helicopter Handbook

- H70 General Aerodynamics
- H71 Aerodynamics of Flight
- H72 Loads and Load Factors
- H73 Function of the Controls
- H74 Other Helicopter Components and Their Functions
- H75 Introduction to the Helicopter Flight Manual
- H76 Weight and Balance
- H77 Helicopter Performance
- H78 Some Hazards of Helicopter Flight
- H79 Precautionary Measures and Critical Conditions
- H80 Helicopter Flight Maneuvers
- H81 Confined Area, Pinnacle, and Ridgeline Operations

Gyroplane Flight Training Manual — McCulloch

- H90 Gyroplane Systems
- H91 Gyroplane Terms
- H92 Use of Flight Controls (Gyroplane)

- H93 Fundamental Maneuvers of Flight (Gyroplane)
- H94 Basic Flight Maneuvers (Gyroplane)

AC 61-27 Instrument Flying Handbook

- I01 Training Considerations
- I02 Instrument Flying: Coping with Illusions in Flight
- I03 Aerodynamic Factors Related to Instrument Flying
- I04 Basic Flight Instruments
- I05 Attitude Instrument Flying — Airplanes
- I06 Attitude Instrument Flying — Helicopters
- I07 Electronic Aids to Instrument Flying
- I08 Using the Navigation Instruments
- I09 Radio Communications Facilities and Equipment

AC 00-6 Aviation Weather

- I20 The Earth's Atmosphere
- I21 Temperature
- I22 Atmospheric Pressure and Altimetry
- I23 Wind
- I24 Moisture, Cloud Formation, and Precipitation
- I25 Stable and Unstable Air
- I26 Clouds
- I27 Air Masses and Fronts
- I28 Turbulence
- I29 Icing
- I30 Thunderstorms
- I31 Common IFR Producers
- I32 High Altitude Weather
- I35 Soaring Weather
- I36 Glossary of Weather Terms

AC 00-45 Aviation Weather Services

- I40 The Aviation Weather Service Program
- I41 Surface Aviation Weather Reports
- I42 Pilot and Radar Reports and Satellite Pictures
- I43 Aviation Weather Forecasts
- I44 Surface Analysis Chart
- I45 Weather Depiction Chart
- I46 Radar Summary Chart
- I47 Significant Weather Prognostics
- I48 Winds and Temperatures Aloft
- I49 Composite Moisture Stability Chart
- I50 Severe Weather Outlook Chart
- I51 Constant Pressure Charts

AIM Airman's Information Manual

- J01 Air Navigation Radio Aids
- J02 Radar Services and Procedures
- J03 Airport Lighting Aids
- J04 Air Navigation and Obstruction Lighting
- J05 Airport Marking Aids and Signs
- J06 Airspace — General
- J07 Class G Airspace
- J08 Controlled Airspace
- J09 Special Use Airspace
- J10 Other Airspace Areas
- J11 Services Available to Pilots
- J12 Radio Communications Phraseology and Techniques
- J13 Airport Operations
- J14 ATC Clearance/Separations
- J15 Preflight
- J19 Pilot/Controller Roles and Responsibilities
- J20 National Security and Interception Procedures
- J21 Emergency Procedures — General
- J22 Emergency Services Available to Pilots
- J23 Distress and Urgency Procedures
- J24 Two-Way Radio Communications Failure
- J25 Meteorology
- J26 Altimeter Setting Procedures
- J27 Wake Turbulence
- J28 Bird Hazards, and Flight Over National Refuges, Parks, and Forests
- J29 Potential Flight Hazards
- J30 Safety, Accident, and Hazard Reports
- J31 Fitness for Flight
- J32 Type of Charts Available
- J33 Pilot Controller Glossary
- J34 Airport/Facility Directory
- J35 En Route Low Altitude Chart
- J36 En Route High Altitude Chart
- J37 Sectional Chart

AC 67-2 Medical Handbook for Pilots

- J52 Hypoxia
- J53 Hyperventilation
- J55 The Ears
- J56 Alcohol
- J57 Drugs and Flying
- J58 Carbon Monoxide
- J59 Vision
- J60 Night Flight
- J61 Cockpit Lighting
- J62 Disorientation (Vertigo)
- J63 Motion Sickness

- J64 Fatigue
- J65 Noise
- J66 Age
- J67 Some Psychological Aspects of Flying
- J68 The Flying Passenger

ADDITIONAL ADVISORY CIRCULARS

- K02 AC 00-30, Rules of Thumb for Avoiding or Minimizing Encounters with Clear Air Turbulence
- K04 AC 00-54, Pilot Wind Shear Guide
- K11 AC 20-34, Prevention of Retractable Landing Gear Failure
- K12 AC 20-32, Carbon Monoxide (CO) Contamination in Aircraft — Detection and Prevention
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- L34 AC 90-48, Pilots' Role in Collision Avoidance
- L42 AC 90-87, Helicopter Dynamic Rollover
- L50 AC 91-6, Water, Slush, and Snow on the Runway
- L52 AC 91-13, Cold Weather Operation of Aircraft
- L57 AC 91-43, Unreliable Airspeed Indications

American Soaring Handbook — Soaring Society of America

- N01 A History of American Soaring
- N02 Training
- N03 Ground Launch
- N04 Airplane Tow
- N05 Meteorology
- N06 Cross-Country and Wave Soaring
- N07 Instruments and Oxygen
- N08 Radio, Rope, and Wire
- N09 Aerodynamics
- N10 Maintenance and Repair

Soaring Flight Manual — Jeppesen-Sanderson, Inc.

- N20 Sailplane Aerodynamics
- N21 Performance Considerations
- N22 Flight Instruments
- N23 Weather for Soaring
- N24 Medical Factors
- N25 Flight Publications and Airspace
- N26 Aeronautical Charts and Navigation
- N27 Computations for Soaring
- N28 Personal Equipment
- N29 Preflight and Ground Operations
- N30 Aerotow Launch Procedures
- N31 Ground Launch Procedures
- N32 Basic Flight Maneuvers and Traffic
- N33 Soaring Techniques
- N34 Cross-Country Soaring

Taming The Gentle Giant — Taylor Publishing

- O01 Design and Construction of Balloons
- O02 Fuel Source and Supply
- O03 Weight and Temperature
- O04 Flight Instruments
- O05 Balloon Flight Tips
- O06 Glossary

Flight Instructor Manual — Balloon Federation of America

- O10 Flight Instruction Aids
- O11 Human Behavior and Pilot Proficiency
- O12 The Flight Check and the Designated Examiner

Propane Systems — Balloon Federation of America, 1991

- O20 Propane Glossary
- O21 Tanks
- O22 Burners, Valves, and Hoses
- O23 Refueling, Contamination, and Fuel Management
- O24 Repair and Maintenance

Powerline Excerpts — Balloon Federation of America

- O30 Excerpts

Balloon Ground School — Balloon Publishing Company

- 046 Balloon Operations

Goodyear Airship Operations Manual

- P01 Buoyancy
- P02 Aerodynamics
- P03 Free Ballooning
- P04 Aerostatics
- P05 Envelope
- P06 Car
- P07 Powerplant
- P08 Airship Ground Handling
- P11 Operating Instructions
- P12 History
- P13 Training

Practical Test Standards

- Z01 FAA-S-8081-6, Flight Instructor Practical Test Standards for Airplane
- Z02 FAA-S-8081-7, Flight Instructor Practical Test Standards for Rotorcraft
- Z03 FAA-S-8081-8, Flight Instructor Practical Test Standards for Glider

NOTE: AC 00-2, Advisory Circular Checklist, transmits the status of all FAA advisory circulars (AC's), as well as FAA internal publications and miscellaneous flight information such as Airman's Information Manual (AIM), Airport/Facility Directory, practical test standards, and other material directly related to airman certificates and ratings. To obtain a free copy of AC 00-2, send your request to:

U.S. Department of Transportation
General Services Section, M-45.3
Washington, DC 20590

COMPUTER TESTING DESIGNEES

The following is a list of the computer testing designees authorized to give FAA knowledge tests. This list should be helpful in case you choose to register for a test or simply want more information.

Aviation Business Services
1-800-947-4228
outside U.S. (415) 259-8550

Drake Training and Technologies, Inc.
1-800-359-3278
outside U.S. (612) 896-7702

Sylvan Learning Systems, Inc.
1-800-967-1100
outside U.S. (410) 880-0880, Extension 8890

You may obtain the latest listing of computer testing designees and computer testing center locations by calling your local Flight Standards District Office or the Examiners Bulletin Board, by computer modem, at (405) 954-4530 or 1-800-858-2107.

APPENDIX 2

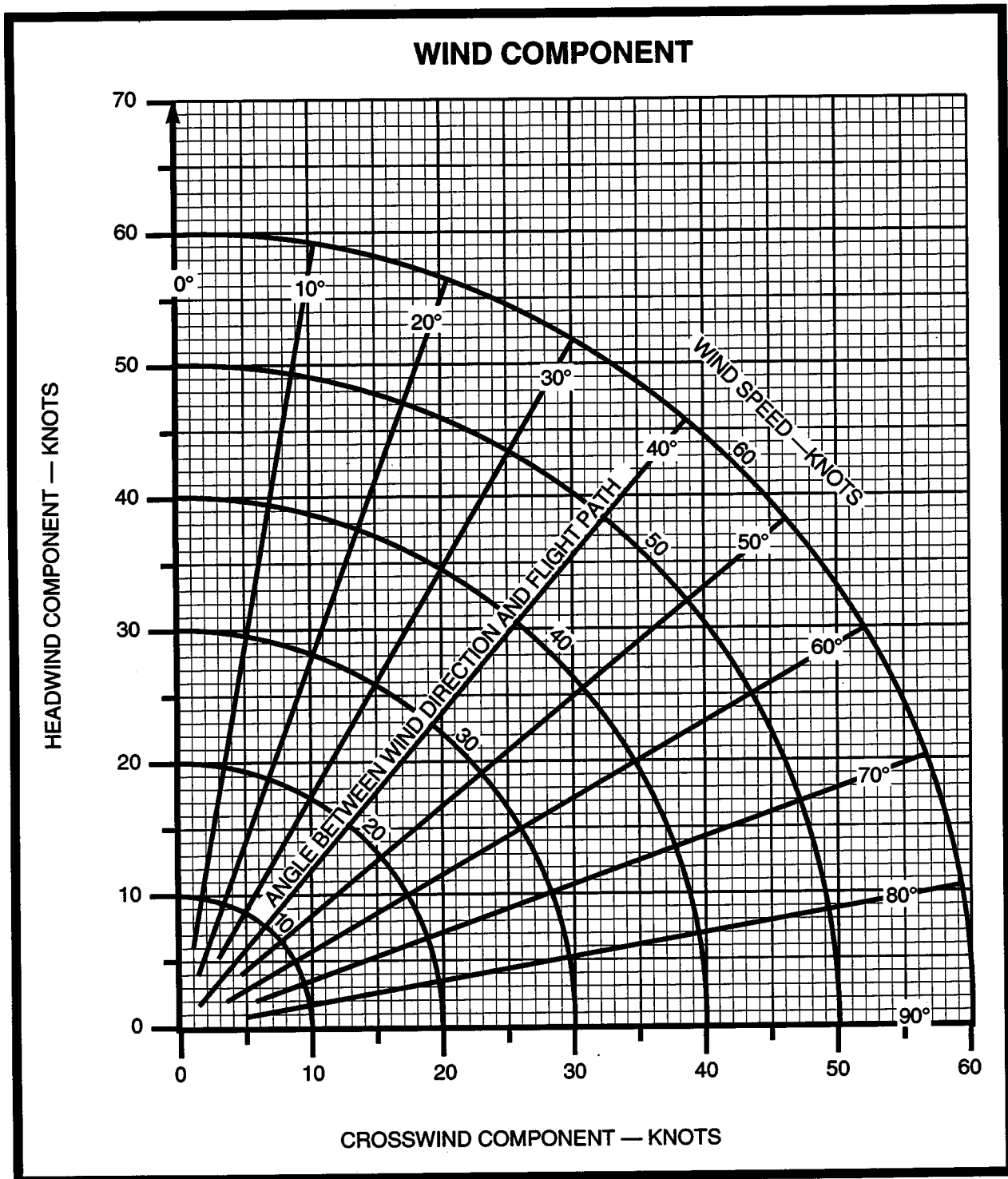


FIGURE 1.—Wind Component Chart.

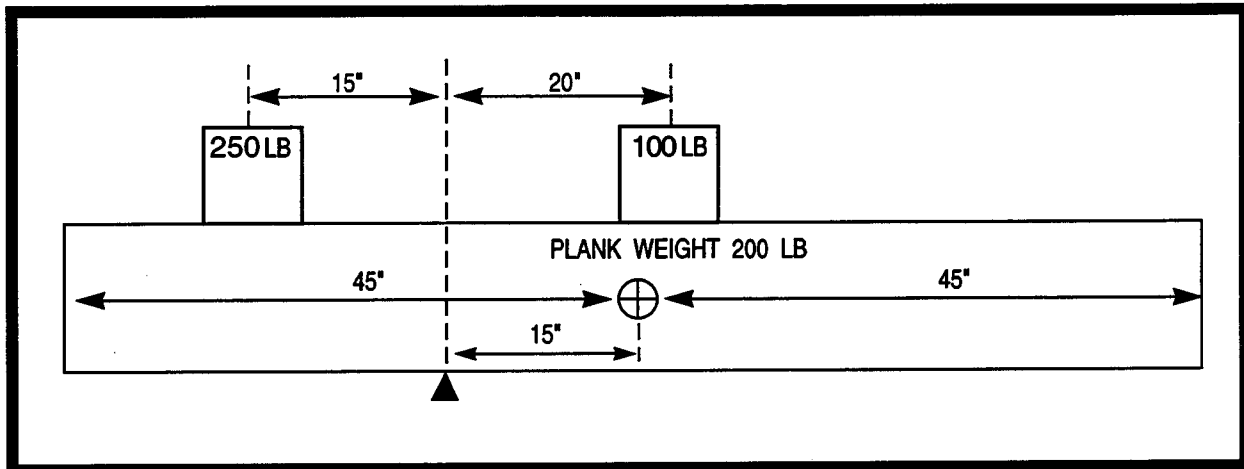


FIGURE 2.—Weight and Balance Diagram.

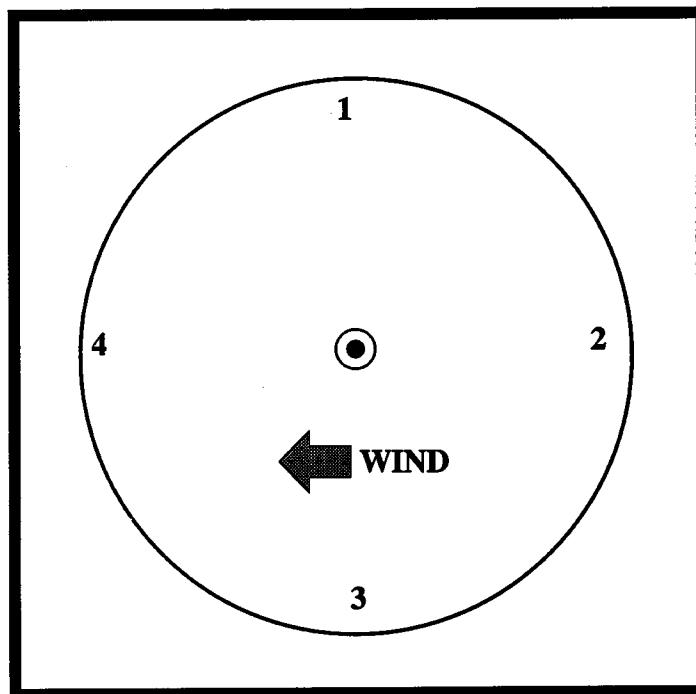


FIGURE 3.—Turn Around a Point Diagram.

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